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EDITOR AND PROPRIETOR.

European Honey & Wax Importation.

Some time ago we noticed an item in an English paper that, at a sale in Lisbon, Portugal, *sixty tons* of beeswax had been sold. This shows what an extensive sale and use it has in Europe.

The *Deutscher Bienenfreund* for May contains a table showing the amount of honey and beeswax received at Hamburg from foreign countries during 1881 and 1882. The amount of honey was as follows, from

	1881.	1882.
Havana.....lbs	550,000	525,000
Mexico....."	1,100,000	835,000
Chili and Peru....."	1,320,000	1,105,000
California....."	48,000	—
Domingo....."	450,000	270,000
Total.....	3,468,000	2,735,000

Of beeswax the amounts received were as follows, from

	1881.	1882.
Chili.....lbs	90,000	54,000
Venezuela....."	145,000	63,000
Angola....."	14,000	—
Madagascar....."	48,000	33,000
West Indies....."	38,500	12,000
Total.....	335,500	162,000

Honey is extensively used in Europe in the manufacture of honey wine, metheglin and cakes; for preserving fruit, and preparing medicine, as well as for table use, for which it is more generally used than in America.

One firm (Messrs. Field & Co.), in Paris, use ten tons of American beeswax per month in making candles for Catholic altars. The religious pagantry of Roman Catholic countries owe much of its spendor and influence to its altar-candles, each the tribute

of a thousand flowers, collected by millions of bees, leading the thoughts back, perchance, to the sweet and pure origin.

Its other uses are very numerous and important. The *New York Grocer* enumerates the following:

Its property of preserving tissues and preventing mold or mildew was well known to the ancients, who use serecloth for embalming, and wax for encaustic painting, as in the wall pictures of Pompeii, wax candles and tapers play an important part in the processions and ceremonies of the Roman Catholic church. Wax is used by manufacturers of glazed, ornamental wall papers, and on paper collars and cuffs for polishing the surfaces. It is used in varnishes and paints, and for the "stuffing" of wood which is to be polished, as pianos, coach work, fine furniture and parquette floors. Electrotypers and plasterers use wax in forming their molds. Wax is an important ingredient in preparations for covering surfaces of polished iron and steel to prevent rust. Combined with tallow, it forms the coating for canvass and cordage to prevent mildew, as in sails, awnings, etc. Artificial flowers consume much wax, and, despite the introduction of paraffine, ceresin and mineral wax, its use appears to be extending. One of the oldest of its applications is in the laundry, and in polishing wood-work.

Bees and Fruit.

A correspondent in the *Prairie Farmer* remarks as follows on this subject, giving the results of some experiments. "The much-discussed question whether bees injure fruit was attempted to be solved by a committee of the Warsaw Horticultural Society. The work was begun, but finally neglected and never finished. How much and what was shown is the purpose of this paper."

A committee of three was appointed in the summer of 1881, of which the writer was one—and on July 9th of that year, in conjunction with a noted bee expert, they began their experiments, with early peaches. Their first experiment was as follows: They took three peaches of equal ripeness—two of them with the skin

slightly punctured, by insect or bird, and one with the skin entirely sound and unbroken. The punctures in the skin of the two were small, say about the size of a pin-head. These three peaches were carefully handled, and were taken and placed in a hive with a strong swarm of bees.

Result.—The next day, which was Saturday, and just 24 hours afterwards, the hive was opened and the peaches examined. The two punctured ones were found to be partly eaten by the bees, while the one with unbroken skin remained whole as at first. They were all replaced again in the hive. On Monday, at the same hour—which was 48 hours from the last examination, and 72 hours since the peaches had been taken from the tree—they were again examined. This time the two were nearly consumed, and the one was considerably eaten.

The query here presented itself to the committee: Did the bees begin on the third peach while its skin was yet intact, or did they wait till it, by its decay, became broken? That single experiment could not decide that important point. At the period of the first examination, that peach was still whole and seemingly sound, but as two more days intervened before it was examined the second time, it is quite possible that it may have decayed so far as to open the skin before the bees began their work on it. It is affirmed by bee physiologists that the bees have no teeth or other instrument by which they could perforate the skin of a sound ripe peach. And they stoutly maintain that bees do not originate the trouble, but only follow after some other depredator. This single experiment of the Warsaw committee, though not conclusive, goes far to prove that this theory of the bee men is the correct one.

Numerous other experiments and examinations were made subsequently by individual members of the committee, in regard to peaches; but none worth reporting in reference to other fruits.

In one case, five peaches were designated as they hung on the tree. One of them was nearly eaten up by the bees, one about half eaten, two others less so, and with no sign of decay about any of them. The fifth was entirely whole, with the exception of one little round puncture the size of a pin's head; and another the size of a grain of rye. These were both located at the ripest and softest side of the

fruit. No evidence of rot was visible. The origin of those punctures was unknown, but as at the time of the selection the bees were busy on the whole five, it was only a question of time—an hour or two—till they would all be consumed.

It may be mentioned, that in these experiments the big black ants were generally observed on the trees; and it has been suggested that they may be the depredators which make the original punctures, and open the way for the bees.

These experiments, however imperfect and unsatisfactory they may be regarded, taken in connection with other known facts, have convinced the writer thus far in the matter of the main question: That bees do not eat ripe peaches that are, if not to say absolutely sound, at least marketable.

Future experiments, it is hoped, will be made by that committee, as well as others, as to their depredations on other fruits.

What the Weather Will Be.

Prof. Börner, of Vevay, Ind., translates for the *Indiana Farmer* the following from the Latin, showing observations gathered from the most reliable sources in England, embracing years from 1677 to 1799, being 122, as follows:

1. When the vernal equinox is not preceded or followed by the usual equinoctial storms, the succeeding summer will be dry at least five times in six.

2. If easterly storms occur on the 19th, 20th or 21st of May, the ensuing summer will likewise be dry; the same characteristic applies to storms, from whatever direction, on the 25th, 26th or 27th of March, viz., a dry summer will follow.

3. When storms happen from or between the 17th and 23d of March, having directions from the west southwest, the succeeding summer will be wet five times out of six. In England, when both winter and spring are dry, they are always cold, but when these two seasons are wet, they are usually warm: on the contrary, dry summers and autumns are most always hot, and wet summers cold; hence, if the humidity of any special season be determined, an approximately correct idea may be formed what the prevailing temperature will be.

4. A wet autumn, succeeded by a mild winter, is generally followed by a dry and cold spring, which will be unfavorable to the growth of vegetation.

5. A wet summer is almost always succeeded by a severe cold winter, because the terrestrial heat has been carried off by evaporation; it has also been observed that wet summers promote great proficiency on the white thorn, so that an unusual fruitfulness of the shrubs is considered a presage of an intensely cold winter.

6. A severely cold winter is also indicated by the early departure in the autumn of cranes and other migratory

birds, because these birds never leave for a southern climate until the cold has commenced in the higher northern regions.

7. When the month of September is showery, it seldom rains during the coming month of May, and, the contrary, should September pass without showers, the following May will be rainy and wet.

8. When, in summer and autumn, the preponderating wind is from the southwest, or when the temperature is unusually low, profuse rain may certainly be expected at the end of the season.

9. Tempestuous storms and other violent commotions of the clouds, produce a crisis in the atmosphere, which is followed by a succession of several months of fine or boisterous weather, of whatever the incoming change may be.

10. A mild and rainy winter is always followed by a profitless summer.

11. When rainy weather prevails during a moon, the change succeeding will be fair weather for several days, after which rain will again set in; but when fair weather prevails during the moon, and the succeeding change be rain, fair weather will again return after the fourth or fifth day of the moon, and continue as before.

12. The most decided indication for fair weather, is the apparently great elevation of the celestial concave, and an evident disposition of the clouds to dissolve and vanish away.

Keystone Convention.

The "Seed Time and Harvest" gives the following report of the above named Convention:

We had the pleasure of attending a meeting of the Keystone Bee-Keepers' Association at Scranton, a few days ago. This is the only society of the kind in Northeastern Pennsylvania, and much interest was manifested by those present. The society numbers some fifty members, owning from six to two hundred colonies of bees. The questions discussed were: The Production of Surplus Honey, Wintering Bees, and Rearing Queens. Mr. J. Vandervort, of Laceyville, Pa., the inventor of the Vandervort Foundation Machine, was present, and exhibited some of the finest sheets of foundation we ever saw. All present agreed that a much larger yield of surplus honey could be secured by the use of foundation, than without it. It was generally agreed by those who had tried it, that the foundation for the lower frames or brood chamber, should be secured by fastening with fine wire drawn through the frames several times from top to bottom. These wires stiffened the frames and kept them from sagging, a fault which is quite common in unwired frames, and results in the breaking down of combs in hot weather. For the section boxes, small triangular pieces of thin foundation were recommended.

Different methods of wintering were described by the members present, and, as most of them had lost more or

less bees, it was agreed that no perfect method had been discovered yet. Mr. George C. Green, of Factoryville, who had lost a very small percentage for the past four years, advocated the use of the chaff hive, as also did several others. There appeared to be no professional queen breeders present, but a few chapters from Mr. Alley's new book on Queen Rearing were read, and proved to be very instructive.

It was decided to make a Society Exhibit at the next Lackawanna County Fair, and we presume that some fine specimens of the work of the industrious little insects, will be exhibited.

Prizes for Honey.

Messrs. H. K. & F. B. Thurber & Co., have issued the following Circular to bee-keepers:

First-class, uniform, well-packed honey, always sells quicker and for more money than honey of irregular grades, and it is, therefore, important for both dealers and producers to have honey marketed in the most desirable form. To interest producers, and induce them to attain this result, we have decided to offer the following prizes:

For One-Pound Sections.—For the best average crop of white honey, put up in one-pound sections, one first prize, consisting of a set of Appleton's Encyclopedia, 17 volumes; value, \$85.00. For the second best, one second prize, consisting of a complete set of Chambers' Encyclopedia, 10 volumes; value, \$30.00.

For Two-Pound Sections.—For the best average crop of white honey, put up in two-pound sections, one first prize, consisting of a set of Appleton's Encyclopedia. For the second best, one second prize, consisting of a complete set of Chambers' Encyclopedia.

The requirement will be a uniform grade of white honey, well fitted around sides of sections, neatly capped over, glass thoroughly glued to sections, and packed in clean, smooth, neat crates, as well as sections.

Where parties do not send us their crop, judgment will be rendered from a sample of five (5) crates, accompanied by an affidavit of the producers that it represents the fair average of his crop, and for these we will pay the New York market price for this grade of honey. The judges are to be the editor of the *New York Bee and Poultry Magazine*, the secretary of the Northeastern Bee-Keepers' Association, Mr. P. H. Elwood, of Starkville, N. Y., Mr. C. G. Dickinson, of South Oxford, N. Y., Mr. W. L. Tennant, of Schoharie, N. Y., and Mr. McCaul, who has charge of our honey department. This competition is to be open to any bee-keeper in the United States or Canada, and is to take place October 18, 19, and 20, 1883.

The Central Kansas Bee-Keepers' Association will meet at Manhattan, Kansas, on June 30, 1883.

THOS. BASSLER, Sec.

A Well "Timed" Mark of Respect.

Mr. C. N. Abbott, who nine years ago started the *British Bee Journal*, was, in January, succeeded by the Rev. Herbert R. Peel, as previously stated in this paper. It is with pleasure that we record the fact that the bee-keepers of Great Britain have presented him with a substantial "souvenir," showing that they are not unmindful of his labors in behalf of progressive and scientific apiculture. The *British Bee Journal* informs us that "the testimonial took the form of a handsome black marble dining room clock, designed after the style of the temple at the foot of the Acropolis at Athens, with bronze bas relief figures representing priestesses sacrificing to Minerva. Affixed to it was an inscription-plate stating that the clock had been presented to Mr. Abbott from a few well wishers and friends, as a token of their appreciation of the services rendered to bee-keeping by his establishment and editorship, for upwards of nine years, of the *British Bee Journal*. Also a framed Illuminated Address on vellum, with the names of the subscribers to the fund arranged in alphabetical order."

The Rev. Herbert R. Peel, his successor, in the editorial chair, made the presentation with the following remarks:

"He had been informed that this clock was called the 'Acropolis' clock, and the Acropolis was not very far distant from Mount Hymettus. Milton is his 'Paradise Regained' says:

"There flowery hill Hymettus, with the sound
Of bees' industrious hummur oft invites
To studious musing."

And he had been led to some musings in connection with the classic temple just referred to. Eighteen centuries ago there stood under the shadow of the Acropolis, a man striving to convert a city to the Christian faith. This man had to contest against a great mass of ignorance and superstition; and it had struck him that Mr. Abbott stood out, to some extent, as a similar example of a man working hard and single-handed to enlighten the ignorant and combat superstition. Their zealous friend had undertaken to teach the whole British nation on the subject of bee-keeping when he started the *Journal*. At the commencement of this task he was alone, as St. Paul had been. He had a number of difficulties to contend against, mostly those of apathy and want of sympathy. Even after 6,000 copies of the *Journal* had been sown broad-cast over the length and breadth of England, and 5,000 circulars distributed, only 200 subscribers came forward to assist. This result was

quite enough to make any one despair. However, Mr. Abbott did not yield to the adverse wave, but fought on unflinchingly, and, after a considerable time, had the satisfaction of seeing his endeavors rewarded by the formation of the British Bee-Keepers' Association, and the establishment of metropolitan shows, which have been held, with one exception (in 1877), in London annually, for several years past."

"Mr. Abbott said that he felt somewhat embarrassed by the exceedingly kind and flattering remarks of Mr. Peel. All that gentleman had said of his early experience in regard to the cause they all felt so much interested in, came back on his mind with double force. There were difficulties, but having put his hand to the work, he determined to overcome them, feeling sure that in a good cause, with truth for his guide and honesty for his intention, he was sure of at length winning the support of the better class of bee-keepers in the country.

"In selecting a clock for him, they could not have chosen anything more suitable for a presentation. He looked upon a clock as he looked upon an honest man, because if it be a good clock, it always shows a face that one is pleased to look on, that is, a face that always tells the truth. This beautiful time piece would be his future companion, and whenever he looked on it, his memory would recall the excellent friends that he had made by a consistent course of conduct which he had always maintained in the *British Bee Journal*.

"There was not a single motion in the clock, but what was measured, from the second to the minute, from the minute to the hour, and from the hour to the day; and there was not in the *British Bee Journal* a single mark that flowed from his fingers, from the letter to the word, and the word to the sentence, but what was also measured, and measured by himself in the hope that it would be understood and appreciated as being strictly true, and written for the honest purpose of benefitting his fellow creatures.

"A clock, however, sometimes gets wrong, owing to its machinery being out of joint; so also he feared there must have occasionally been some little things out of joint in his conduct of the *British Bee Journal*, of which no one could be more sorry than himself. He was proud to see so many friends around, to welcome him on the present occasion, because he felt assured of their sympathy and acquiescence in the honor which had been done him that day. He could but express his heartfelt gratitude for their extreme kindness, which would always live in his memory."

In commenting on this, the *Bee and Poultry Magazine*, of New York, says that it "shows American bee-keepers how greatly the Europeans excel us in their courtesy and kindly wishes to those in the same profession. We hope the day is not far distant when American bee-keepers may feel to-

ward each other the same generous, hearty good will." These are our sentiments exactly. Nothing is so disagreeable and disheartening, as the jealousy and strife persistently indulged in by a few bee-keepers and conventions in this country, trying to antagonistically array the East and the West. Such should learn a lesson from the above, and hereafter strive only for harmony, unity and fraternity.

Southern Exposition at Louisville.

This Exposition, which commences Aug. 1, promises to be of the greatest importance to the South. Bee-keepers should avail themselves of the opportunity to have a grand Bee and Honey Show there. Mr. Elias Thomasson, who lives at 1015 H Avenue, Louisville, Ky., writes us as follows, on the subject:

Louisville is a city of 150,000 inhabitants, but it has no depot for bee-keepers' supplies. We would welcome a good man here, to meet the wants of Kentucky and the whole South, to supply everything needed for the trade. He will meet a hearty welcome.

Doubtless you have learned, by the newspapers, of our proposed Exposition to commence the 1st of August next, to last 100 days. The building, covering 13 acres, is already far advanced, and will be ready to receive goods, the 15th of July next, for exhibition. Two New York City bands get \$35,000 for their services, and also a \$10,000 organ has been bought for the occasion.

No man has made application for an exhibit of apianian supplies. Who will come? Send to me and I will forward the blanks necessary to make application, by return mail. There is no charge for exhibiting honey; any quantity of it; but I think \$25 will be charged if manufactured articles are offered for sale, but that is not yet positive, as the superintendent could not give me an answer on his own responsibility.

Our people are expecting 1,000,000 of strangers to visit the Exposition, and, I will add, 1,000 men, who keep bees, in some sort of hives, will be here. What a chance! Who will take it? I am on crutches, but my heart is very full.

The Bee-Keepers' Exchange has again changed hands. Messrs. Colgrove & Ullery are now the publishers.

And a change has been made in the proprietorship of the *Magazine*. It is now published by King & Aspinwall.

The AMERICAN BEE JOURNAL gives friendly greetings to the new publishers all around.

CORRESPONDENCE

For the American Bee Journal.

Ventilation of Bee Cellars.

S. CORNEIL.

Mr. Allen Pringle's article, on page 167 of the BEE JOURNAL, pretty fully meets the requirements of "a rousing article on how to ventilate a damp cellar." He says it is scarcely practicable to put in a sub-earth pipe after the cellar is built, but I found no difficulty whatever. We just carried the excavation up to the cellar wall, and then broke a hole through for the pipe. After the stones were again built in, and the earth replaced, all was close. If possible, sub-earth pipes should be laid as much as 5 feet below the surface, because it is said that at that depth the thermometer ceases to show the daily fluctuations of temperature. The temperature is probably nearly 50°, which is said to be the uniform temperature of springs of water after running for some distance under ground. It will be readily seen how much easier a uniform temperature can be maintained in a cellar, the walls of which are surrounded by soil, a little below 50°, than in a room above ground whose walls are exposed to strong winds and the temperature constantly varying.

Mr. L. C. Root, who winters from 100 to 200 colonies with uniform success, takes the supply of fresh air from a warm room above. To do this successfully there should be a strong exhaust current from the cellar to the stove pipes or chimnies above, and the only opening for the ingress of air should be through the floor, as far as possible from the point of egress.

The ventilation of repositories not connected with artificial heat is often very faulty. Air has weight, and it requires force to lift or move it out of an apartment in order that pure air may take its place. Perfect ventilation is never automatic. I think if the particulars regarding Mr. Doolittle's new wintering cellar, for instance (see page 741 BEE JOURNAL for 1882), were submitted to a competent engineer for an opinion, he would be likely to say that under some circumstances the current would move in the desired direction, under other circumstances there would be no current at all, and again, that the current might flow in the opposite direction from that desired. I have long held the opinion that Mr. Doolittle's bees were either killed or half poisoned by their own breath, in his old "mud hut." The idea has been recently thrown out that while bees are in their semi-torpid state, it is better that the surrounding air should be foul, because they will not live so fast, and will come out younger in the spring. I think this position is untenable. It is true the respiration is lower while they are apparently dormant, but if supplied with pure air,

they will make the fewer respirations per minute. They, at all times, consume some food, and for the purpose of combustion some oxygen is required. If the air only contains a reduced proportion of this, they will be obliged to breathe faster to get the necessary quantity, like the traveler who said he had to drink a great deal of water in order to get a little tea, only in the case of the bees, the extra quantity of foul air re-breathed is positively injurious. In regard to supplying bees with pure air, it is like what the squaw said about the whisky on being remonstrated with for having taken a little too much. Her reply was that a little too much is just enough. So with the bees, we need not be afraid to give them, if possible, a little too much pure air. The want of an exhaust current in such cellars as Mr. Doolittle's, may be very simply remedied by placing a large lamp in the pipe leading to the outer air. Some of the best engineers recommend using lamps or gas jets, as a makeshift, to ventilate small apartments, and I see by the report of the Board of Health for Ontario, that such an arrangement is used successfully for ventilating a part of the General Hospital at Toronto. Those who may desire to get all the details will find them in Gouge on Ventilation, published by D. Van Nostrand, N. Y.

My observations on the condition of the air in my cellar during the past winter, have led me to the conclusion that if we are to have the dampness as well as the temperature under our control, the sub-earth pipe must be of a material which is impervious to moisture. The pipe bringing air into my cellar is of pine plank, having a cross section of 36 square inches, and running 140 feet through a wet soil. I found that the air, as it entered the cellar, was excessively moist when it should have been comparatively dry, on account of the increase of temperature as it passed through the pipe. The relative humidity was generally from 90° to 95°, but sometimes the air was completely saturated as it entered the cellar. For instance, on the 8th of March, when the air outside was 2° above zero, the air entered the cellar at 36°, and was fully saturated with vapor. Now, air at 2° is capable of containing nearly six-tenths of a grain of vapor per cubic foot when saturated, but the air outside was not saturated, and consequently contained less than that quantity. Saturated air at 36° contains about 2½ grains of vapor per cubic foot. Therefore, in passing through 140 feet of wooden pipe, the air must have acquired at least 2 grains of vapor per cubic foot. Again, on the 8th of April, the air outside was warmer than that in the cellar, but the nights were still cold. In the evening, as the temperature was falling, I watched till the thermometer outside and in the mouth of the pipe in the cellar, showed exactly the same temperature, 42°. The relative humidity should also have been the same, but there was a difference of 23°, the relative humidity outside being 67°, and that of the air as it entered the cellar 90°.

My conclusion is that for sub-earth ventilation, we require vitrified sewer pipe securely cemented at the joints. In this way only can we have dampness under control and exclude foul gasses. It is possible that with such a pipe the air might be found to be too dry. The exact degree of humidity at which bees can be kept in a cellar for six months in the best health has, I believe, yet to be determined, but until we have more information on the point, I think it will be safest to aim at about the average relative humidity of summer; in Ontario this is 74° of moisture out of a possible 100°.

Your readers may desire to know how my bees wintered in such a moist atmosphere. I am pleased to be able to report that they did pretty well. On the 3d of November last, I put in 65 colonies, and on the 16th of April, I carried out 64 alive. One had starved, three were weak, and another has since been found to be queenless. There was not a square foot of moldy comb in the whole lot. There was a little spotting in some of the hives, but so little that it need not be taken into account. When they were set out, the discharges were not copious, nor yellow and watery, but small and dark colored. I had no swarming-out or other troubles, although they were set out promiscuously between seven and nine o'clock in the morning.

Possibly some one will say that this experience is rather against the theory I have been advocating, that a damp atmosphere is one of the main causes of dysentery, but wait a little; the above is only a partial statement of the facts. Evaporation will take place in an atmosphere having a relative humidity of 90° or 95°, provided the air in contact with the evaporating surface is constantly changed. The wash will dry in such an atmosphere if there is a wind. My bees were in very moist air, but they had very good ventilation, and had the means of keeping as warm as they required to be. My cellar is small, the cubical contents being only 660 feet, or when the hives are in, say 500 cubic feet of air. There are two exhaust pipes connected with stove pipes above, changing the air very frequently. Two colonies of bees in closed-end Quinby frames were placed side by side separated by a thin veneer of wood, and these were tiered up three in height. The frames were raised 2 inches above the bottom boards, and one side of this space was left open. The hives were covered with thick quilts of sheep's wool over a "Hill's device." A peep under these quilts at any time would find the bees quiet, dry, snug and cosy. On account of the heat being so well confined by the quilts and of the heat from the adjoining cluster, many of the colonies clustered out in the open space between the bottom board and the frames, the greater part of the winter; some of them for 120 days. Some bee-keepers would probably call this "high pressure" as to the temperature of the air in the cellar, but it was not, for a thermometer placed midway between the floor and ceiling, averaged about 40°. Early in the

winter, in a few hives, the dead bees began to drop from between the combs to such an extent that soon the heaps reached to the frames, and these heaps of dead bees were removed two or three times. If the frames had not been raised, the ventilation of the hives would have been effectually stopped. The bees dying thus were not distended, and showed no signs of dysentery. I increased from 39 to 65 after the 1st of August, last season. Possibly some of my bees were prematurely old. I fed 1.025 pounds of loaf sugar last fall, and did not discriminate against combs containing pollen. I think my past winter's experience shows that bees may, with very good ventilation, be wintered in a very moist atmosphere, and that they may be so "clothed" as to cluster out in an atmosphere at 40°. I attribute my success to extremely good ventilation. I lost extensively in the same cellar during a previous winter through want of ventilation. I may give the particulars at a future time.

Lindsay, Ont., May 12, 1883.

ERRATA.—In the 12th line from the top of the second column, page 200, there should be a minus sign before 3°. The want of it makes an error of 16°. Then the figures 545 and 2126, a little further on, are made a thousand times too great by the omission of a decimal point before the first 5, in the first case, and the substitution of a comma for a decimal point, between the first 2 and the 1, in the second case. There are other typographical errors of minor importance.

S. C.

Read before the Western Maine Convention.

Bee Pasturage in Maine.

DR. J. A. MORTON.

I do not know much of this shrub which is referred to by Mr. Alley in his lately published "Bee-Keepers' Handy Book," unless it is our common white alder, found growing wild so plentifully on low lands. If it is, you are all familiar with it. It is a clean little tree, bearing an abundance of bright red berries, of a sweetish, bitter taste. I do not know about its flower, but think you had better take observation of it this season, and govern yourself in regard to it, as it proves itself pleasant to the bees. It would make a good hedge row.

The basswood, or American linden, is the most important honey-yielding tree in the whole State. It is well known to all bee men, and I only call attention to it, for the purpose of urging you to stop cutting it for timber at any price. Let something else take its place in the lumber yard, and keep it growing for the bees; also propagate it by setting out trees in low places, and along the numerous little streams in pastures, and along streets and roadsides and by fences, and even in woods where the growth is scattering, or the ground is curbed by dwarfed spruces or other evergreens. Where nothing but trees can grow there set the basswood. The locust mingled with it or in close proximity, on woody pastures, on the more barren ridges and sandy knolls, will grow quite fast, and soon bear flowers and become valuable for timber.

In the last part of the honey season the wild bloom is quite plenty and

useful. Fireweed on the meadows and river banks; and goldenrod on the dry, worn out sandy plains, in fields and pastures where nothing else will grow, are quite good honey plants and help out the bees nicely—still I am not very partial to them, for no stock eats them, and they are only useful for their honey, and the syrup from granulated sugar is as good if not better for wintering, but in this matter let every man suit himself. The wild aster and frostweed are the last honey plants of the year, if we accept sweet clover and motherwort, which last from the first flowering till the severest frosts kill them down. Motherwort, catnip and some few others are good weeds to sow in waste places not fit for other flowers, but they should be sown in considerable quantities to be of any benefit. A little patch of these plants are an injury because the bees are quite fond of them, and are diverted from a larger extent of other flowers not so pleasant to them but yielding much more honey, and more profitable to the bee master.

To those different trees, shrubs and plants, you can add such as you find by experience good for the purposes intended. Buckwheat is a good grain for feeding, and generally pays for cultivation in its yield, but is quite uncertain for honey. To some it will be profitable to raise, to others it may not. Try it, if you like.

I wish now, having mentioned in detail the leading honey plants of our State, to give a rational, easy and economical method of renovating any of these exhausted and worn out lands to which I have called attention, which will enhance their value year by year, and at the same time give you a fair percentage on the investment by an immediate return in the increased production of honey. If you are the fortunate or unfortunate, just as you may please to think it, owner of such property, not worth the trouble of repairing the fences every spring, for what it will produce through the summer, and, perhaps, turned out to common, go and "survey the landscape o'er" and decide that you will do something for the cause of agriculture and apiculture, for they go hand in hand in this enterprise.

If you have several pastures take the one nearest to the bees, first. If quite small, and you can possibly do so, exclude all stock from it for a year at least. If it is large and you cannot lose the use of the whole of it for the season, partition off a part of it by fencing in more or less, but as much as you can; and by using the loose rocks for this purpose, you gain two points, you have a substantial fence and get rid of the rocks. It pays to snug up rocks in pastures as well as in fields. Should there not be rocks which can be easily handled in sufficient quantities to complete this fence, finish it with the scattering spruces, firs, and other stunted evergreens within the enclosed part, which are only a damage, as they only poison the land for grass. Stumps and logs can be used for this purpose also.

Now go over it and cut every stunted evergreen from them—for nothing will grow under the shadow of such trees—dig up root and branch, running junipers, sweet ferns, hard hacks, brakes and all; removing stumps if convenient, and either pile up in small heaps to burn; or what is better, leave them to decay on the ground, for a cord of rich rubbish left to rot, fertilizes ten times as much as its ashes after being burned. Should there be scattering red or rock maples, elms, willows or other trees producing nectar bearing flowers, especially basswood or locusts, by all means let them stand, and if they are not in sufficient quantity, draw on the woods or other sources for enough to fill the complement. Or, if the soil is suitable, and sheep are to occupy the land, it would be a more excellent plan to set native grown apple trees of the hardy winter varieties, and in a few years, by a little extra pains, you will have a nice young orchard. None of these trees need be set in a regular line or order, but single or in clumps in very rocky spots or places where the grass will not grow or is inaccessible to the stock. Of course, before setting these trees the land must be plowed, if it can be done even poorly, and smoothed off, with some dressing, the more the better, such as stable manure or muck, or ashes, or even plaster will help it some, but be as generous as you can, and you will never regret it.

Having got the land all ready for the seed, be liberal with that also, for you can well afford it, and, if you wish to make the bees happy, sow from 5 to 10 pounds of sweet clover to the acre, or its equivalent of White Dutch or Alsike. I should prefer to have them sown separately, but you may like to mix them—do as you please about this. To these clovers you may add the seeds of good pasture grasses, if you wish to favor the stock which is to occupy the pasture, rather than the bees; but remember one thing, herds grass is not good for this purpose, the cattle soon kill it out.

Now, perhaps, some will say it is too late to do all this when there is scarcely time to get in the regular crops. That is all true; but try to get in an acre or two of sweet clover, or White Dutch, or Alsike, and make the bees happy, and you can leave the balance of the pasture to work on by odd jobs through the whole season, and, by fall, you will be all ready to sow the seed, or at least by early spring. But in that case the cattle must be kept out next year instead of this. All I have said of the small pastures will apply equally to the large, whether mostly clear of woods or partly in forest growth; but let the forest be divided off from the cleared portion as much as it can be, for woods are not good pastures, excepting basswood for bees, the grasses and tender plants will not grow there, particularly is this true of evergreen woods. All worn-out pastures, old orchards and mowing fields, may be treated in the manner above indicated with variations to suit each particular case, only be free with the manure

cart, and do not draw on the bank till one or two years' interest has accrued, and do not let the cattle in during spring and fall. Perhaps some may wish to try buckwheat in order to get immediate returns for their outlay, and because they can sow it later in the season than clover. There is no objection to this, if they plow it under after the bees have worked it, or let lay on the ground and decay. But the latter plan is liable to the danger of the ripened grain re-seeding the ground and coming up next year and choking the clover out. This will not pay. If turned under, the ground must be smoothed off and well seeded with the clover, and will need a little fine dressing, ashes, plaster or phosphate as a starter.

But some will say: "This is altogether too expensive; no man can afford to go over his pastures in this way; it would cost a fortune." I think no man can afford to let his pastures go on as they have for the last 50 or 100 years. As the man said in the storm at sea, "something has got to be done." One great disadvantage of the present condition of pastures is this: There is no fence between forests and cleared land, or what is usually denominated cleared land, and the stock drop most of their manure in these woods or along the little streams in out of the way places, and it is lost for fertilizing purposes. If these fences were put up, they would be kept in the best grazing, and leave the dressing where it would do the most good. The growing forest would not be fed down, and the smoother places would be enriched, and, perhaps, by a little attention in keeping down shrubs and weeds, the forage would be sweet and tender.

But there is a cheaper method, though it is not so thorough, and I doubt whether it would be much cheaper in the end. That is, to go over the pasture by odd jobs, and with a heavy, rough harrow, tear up the knolls or shave them off with a plow, throwing the turf bottom up over some rocky hollow, tear up any roots, stumps or spots of moss; rake up the leaves, cut stunted trees close to the ground, scatter the seed and fertilizer, and as you go on so, it will be done as far as you go. This will give you a chance, during the year, to do a great deal, but the cattle will injure it if it is in the open pasture, and they are let in there. Still another method is to fence off half, or a part of the field, and let the cattle have that and fence in a corresponding breadth of some pasture most convenient and appropriate, and work it for crops, allowing a liberal supply of manure. If not too far from the house, build cheap hog pens, and put half a dozen shoats in a small yard connected with it—plant beets, sow peas, turnips and some fodder corn, and feed them in the yard supplying them plentifully with leaves for a nest, and muck if it can be got. This will give you more dressing right on the ground, and save hauling so far. Or a flock of sheep can take the place of hogs if thought best, but whatever stock is put there it must be fed extra besides what is

grown upon the land. Many advise putting sheep into a run-down pasture to fetch it up, there is surely some conceivable argument in favor of this, that is the supposition they will forage on the woods and leave their droppings on the cleared parts, which is contrary to the facts. I think they will be more likely to reverse the thing—feed down what little grass they can find in the green places and clefts of the rocks early in the morning, and return to the woods to digest and discharge it. Any man who puts a flock of sheep into such a pasture, will be convinced in a few years of the truth of the adage from nothing, nothing comes, and find himself in position of the boy who went whaling. At the end of three years the captain settled thus with him: "0's an 0, and 2's a 2; not a cent coming to you."

I will ask you to closely observe through the season, in regard to the various plants and trees named to you, as to their time of flowering, the preference of the bees for them, the amount of honey and its quality, so far as you can, from the different species, and carefully note all down that you may correct any misstatements I have made, and have a more accurate knowledge in the future. This plan will tend to make us all more observing and more successful in our fascinating employment. Above all let us keep one fixed rule constantly in mind, never to be so selfish as to hide any light we may have. Let us constantly seek more light and knowledge, and be as ready to impart it to our bee-keeping brothers, as we are to ask it of them. The most humble member of our fraternity may, by honest endeavor, become the most useful or us all, a bright and shining light in the firmament of the apiarists. That we all strive earnestly, honestly, and unselfishly in this cause is my earnest wish.

For the American Bee Journal.

Frost Bitten Bees.

W. H. SHIRLEY.

A queer heading for an article on bees I hear some one saying. Wait! let me explain a little. Stimulative feeding in the spring to induce rapid breeding, is, I believe, advocated in all bee books and by many writers. That idea cost me quite a little item, in the way of dead brood, 5 years ago. The same thing occurring again this morning (on a smaller scale—one hive only), put me in mind of old times.

I always winter the bees out of doors, with chaff protection; I have found it the best, so far. I unpack them generally from April 20 to May 10. I have unpacked only 14 this year. At the time of this writing, 4 years ago, we unpacked them early. Bees were in good condition, except that quite a number lacked stores. Here was a chance to try stimulative feeding. As the weather was warm (about 50° most of the time), things moved off nicely; and brood-rearing increased rapidly. We were having

visions of early swarms, and had already divided 5 colonies (dividing for increase, and I have quarreled since that time too). But, alas! the mercury dropped down to freezing; and 2 or 3 frosts followed. The bees had to contract their cluster in order to keep warm. All around them were patches of dead brood; enough to double their numbers.

Stimulative feeding, and I had a quarrel then and there, and never made up, until this spring. Our new way of wintering gives a chance to examine the bees often, with little trouble. We could feed them when the mercury was down to freezing, with ease, and thought we would try stimulative feeding again. Success crowned our second trial, except the one colony spoken of above. On the 18th, we commenced to unpack, as the weather was promising; on the 21st the mercury went down to the freezing point again, and the old story of dead brood in one hive, prompted us to write our little experience in stimulative spring feeding.

The bees in the one colony becoming discouraged, killed their queen, thinking, perhaps, that a young queen would bring warm weather and a "honey shower."

I am in favor of stimulative feeding now, but I want protection from sudden changes in the weather.

Glenwood, Mich., May 22, 1883.

Mahoning Valley, O., Convention.

The quarterly meeting of the Mahoning Valley Bee-Keepers' Association was held at Berlin, May 28.

The attendance was good, the display of apiarian appliances first-class, and the basket picnic dinner was enjoyed by all.

The forenoon session was called to order by the president, Mr. Laundus Carson. The minutes of last meeting were approved. The chair appointed the following committee on apiarian fixtures on exhibition: Mr. Page, Mr. Hall and Mr. H. A. Simons.

One of the most interesting features was the question box.

"Is it possible for an Italian queen to fertilize by a black drone?" Mr. Carson said, "I believe that all the different breeds of bees will mix more or less."

"What is the cause of my queens getting balled at the entrance of the hive? I lost several this spring; I found them dead on the floor of the hive." Mr. Simons thought it a weak colony, virtually starved out. Mr. Carson said, "I got some queens of Mr. Heddon, and lost some of them by getting balled. By a close examination I found them with insufficient food." Mr. Hall said, "It only happens in weak colonies where they have more brood than they can support."

"What is the cause of spring dwindling?" Mr. Carson said, "the Italian bees are more venturesome in cold weather, and perish by cold." Mr. Simon said, "the black bees, with me, are more venturesome than the Italians."

"Will handling bees in the spring materially injure them?" It was thought to be a matter of how rough they were handled.

"Will bees swarm in the spring if they have plenty of honey?" It was thought they would when the hives became full of young bees.

Mr. Simon said, "he thought one cause of dwindling was a lack of young bees to take the place of the old ones in the spring, and would advise breeding as late as possible in the fall. I winter out of doors. I use as young queens as possible for late fall breeding. After the bloom is gone, I feed melted sugar in the hives. This spring I noticed a dwindling of my bees; the cause being the lack of young bees."

Mr. Kinney said, "I have had queens which laid eggs and the workers destroyed them. What is the cause?"

"Are Italian bees longer lived than the black bees?" Mr. Carson said, "I do not know. It is a fact that the black bees are short lived in the spring."

"What sized frames would you advise to get the most honey from, long or short frames?" There was a difference of opinion. Mr. Simon used the long frame, and thinks it preferable. Mr. Carson uses the Union frame, and is well pleased with it.

"The best way to preserve empty combs?" Mr. Carson said, "I clean out my hives and hang them in such a way that mice cannot get at them."

Mr. Simon said, "I keep mine in my hive, under a shed, when it is cool." Mr. Carson said, "if worms get into them, fumigate with brimstone, not too strong."

"Will the drones produced by fertile workers on virgin queens perform the office of drones?" Mr. Simon said "I prefer young queens fertilized by a good drone."

"How is the best way to get rid of fertile worker bees?" Mr. — said, "I unite them with a good strong nucleus. Mr. Simon said, "I take the hives that have fertile workers and shake them on the ground, and the fertile workers never crawl back."

"Will it pay to put on sections for the bees to draw out foundations for apple bloom?" Mr. Hall said, "yes." Mr. Winnery thought that if the body of the hives is full of honey it would pay.

"Which is the most profitable to produce, comb or extracted honey?" Mr. Carson said, "extracted."

"Do you prefer drones from the parent colony for a cross?" I think it would be preferable.

"A queen from a pure Italian mother, that meets with a black drone, what will her drones be?" Mr. Page said, "they are his best workers, and are, as a general thing, less quarrelsome." Mr. Hall says, "I wish to breed from the best, let the breed be what it may. I should cross with those drones whose record is good."

"Do bees ever swarm on apple bloom?" Mr. W. said, "I have known of such instances, but do not think it advisable." Mr. H. said, "I

would build up weak colonies by giving them a few sections of brood."

Committee report: We find placed on exhibition the following: Mr. Eadler, a novice extractor, also a new hive which attracted considerable attention. Mr. George King, a Simplicity hive. Mr. L. Carson, a Union hive, a combination of several.

The matter of where and when to hold our next meeting came up for action. It was the unanimous voice of the meeting to hold our meetings at different points in the Mahoning Valley.

Adjourned to meet at Newton Falls on the third Saturday of August, 1883. E. W. TURNER, Sec.

For the American Bee Journal.

Shall Separators be Used?

F. I. SAGE.

I noticed by the BEE JOURNAL (page 263) that Mr. T. E. Turner confesses that he is becoming "so insane" as to dispense with the use of separators. I consider it pretty good evidence that he has become insane on this subject, and as he admits it, we will take it for granted that such is a fact. But, really, I hope he will not induce New York State bee-keepers to adopt this plan of securing surplus honey. The bee-keepers of New York have the reputation of securing their comb honey in the very best shape for market, and all use separators, except, perhaps, a few who are away behind the times. Of the 50 tons of York State comb honey I have handled during the past season, not a single lot have I bought except where separators have been used; nor would I buy any such, unless at a discount. Every pound of honey I buy must be secured by the use of separators, and every section must be glassed, except the small amount of one-pound sections I use—those should not be glassed.

Mr. Turner says glassing sections are too expensive to the producer; this remark will make some of our York State producers "smile." I always supposed this glassing was the most profitable part of bee-keeping; to be sure, it is some work to glass sections enough to use up one or two tons of glass, but I guess the bee-keeper works many hours for less pay than he gets for glassing his honey. We know it is nonsense to say it does not pay the producer to glass his honey, but whether it does pay or not, our more-advanced bee-keepers, those that get their honey in the most desirable shape and secure the highest price, know it must be glassed for our Eastern trade. I have had Michigan, Illinois and Missouri honey, which was secured without the use of separators, and hence, could not be glassed, but I want no more of it. Although the quality was all right, the style of putting it up was not satisfactory to the consumer, the merchant, or the honey dealer. I could go on, and lengthen out this article, by giving various reasons why this is so, with our Eastern trade, but take

it for granted that New York State bee-keepers are too shrewd, and too far advanced in their profession, to dispense with the use of separators and glass, in order to secure their honey in the most remarkable and profitable shape.

Wetherfield, Conn., May 28, 1883.

Read before Central Michigan Convention.

Cellar vs. the Chaff Hive.

J. T. MATTHEWS.

Among the many ways of wintering bees, which are adopted generally by the people of this country, but two are worthy of notice. These are "cellar wintering," and "chaff hive wintering," the other, leaving the bees out of doors, to "come through" as best they may, is not worthy of mention, for the simple reason that it does not pay.

We have then a single hand-to-hand combat—cellar vs. chaff hive. The question we are trying to decide is, "How to winter bees the cheapest, and have them come out healthy and ready for work in the spring." "Things seen are mightier than things heard." I can do no better than to give a retrospective view of some things brought to my notice within the past year, at the College apiary.

On the 5th of last October, we completed our preparation of the bees for winter. We had 17 colonies of Syrians put up for winter as described by Prof. A. J. Cook, each colony occupying 8 combs of honey, or about 1 cubic foot of space; each colony had about 30 pounds of honey, and from all hives, except one, pollen was carefully excluded, in looking them over. All hives alike had a sack, made for the purpose, filled with very dry sawdust over them, to absorb moisture from the hive and to assist in keeping out the cold in the fall and spring. Four were chaff hives to be left out of doors through the winter, and these, in addition to the sacks before referred to, had sacks extending so as to fill the entire space between the division-board and the end of the hive, thus surrounding the bees on all sides by cushions of chaff. The bottoms were protected by keeping the snow banked under them. Our chaff hives were complete.

On the 14th of November, all the hives were carefully weighed, and the weight of each set opposite to its respective number. On the same day, ten of our common hives (i.e. single-walled hives holding 18 frames) and three chaff hives were carefully removed to the cellar. The object of chaff hives in the cellar was to test chaff hives on an equal footing with single-walled hives, to see the effect upon "spring dwindling." The temperature of the cellar, for the winter, ranged from 38° to 42° F. Of the temperature outside you can judge for yourself; suffice it to say it was very cold.

On the 5th of April we returned to our old friends, after an absence of 142 days, and find them as familiar as ever. To complete our experi-

ment, we commenced by weighing the outdoor chaff hives (four in number), and found an aggregate loss of 58 pounds, or an average loss of $14\frac{1}{2}$ pounds to the colony. One colony was dead, and, as one standing by remarked, they died "in the midst of plenty," for they were dead, clustered on frames at one end of the hive, and the honey was gone from those frames, but the frames at the other end of the hive had plenty of honey. The theory is that they became so cold that they could not change their cluster, and they froze to death.

The 13 colonies came from the cellar with a loss of but 56 pounds, or an average of $4\frac{1}{4}$ pounds to the colony. The greatest amount of loss, in any colony in normal conditions, in the cellar, was 6 pounds, and the least amount, 1 pound.

One colony, which was put up for the cellar with the usual amount (30 pounds) of honey, was found dead, and their honey entirely gone, the weight showing a loss of only 10 pounds. We cannot account for this, except to say that they must have been robbed last fall, after giving them their winter supply of honey, before removing them to the cellar in November.

The colony in which the pollen was left had very badly dwindled. Their queen being dead, they were united with another colony. The colonies wintered in the cellar, with two exceptions, (the one containing pollen and the one supposed to have been robbed in October), show very little loss in numbers, by the dead bees found in the hives. In fact, in looking them over, we find many of them apparently as strong as they were last October, while those wintered in chaff hives out of doors (judging from the same source of information) are very weak indeed.

On examining the bees, a few days after removing them for the cellar (April 7), we find eggs in nearly every hive, showing that they are in first-class condition, and will have a full force ready for work when the flowers come; and we think from the general appearance of the bees, that (leaving out the two principal points in favor of cellar wintering: namely, safety and amount of honey consumed during the winter) the bees which have been wintered in the cellar, are in better condition to go to work this spring, than those wintered in chaff hives.

We often hear the objection raised to cellars that they leave the bees in poor condition to stand the changes of spring, but we candidly believe that the fault is rather to be found with the condition of the cellar or the method of treatment in the spring, than with the method of preparing for wintering.

We would conclude then by saying that cellar wintering seems to us to be, at least, the most economic way to winter bees. We believe it, for three reasons: First, it is safer; secondly, it saves honey; and third, it leaves the bees in better condition in the spring.

Michigan Agricultural College.

For the American Bee Journal.

Old and New Rhymes.

EUGENE SECOR.

A swarm of bees in May, is worth a ton of hay.

A swarm of bees in June, is worth a silver spoon.

A swarm of bees in July, is 'nt worth a fly.

That's the way the rhyme ran, in the days of our boyhood, among the hills of eastern New York. These old sayings, like some of the weather-wise prophecies of a later period, may be of more value in the region where they originated, than when transplanted into this continental prairie soil. At least I thought so, the other day, when the first swarm of bees issued in May.

A ton of hay is worth, in this land of plenty, about \$2.50, while an early swarm of bees ought to yield as much profit as a cow worth \$30. The latter part of the "saw" is as far from the truth as the first. A swarm in July will often fill its hive in 2 weeks, and store a large surplus for its proprietor. August swarms, which did not elicit even a passing notice from the ancient rhymers, will make a hive feel like a chunk of lead when you attempt to move it in the fall. I think in some cases a September swarm might gather honey enough to winter on.

We need a revised edition of those old "sayings," to meet the new conditions of things—at least here in Iowa. If I could grind out rhymes, I would attempt the work myself. I would make it read something like this:

A swarm of bees in May is a "hip, hip, hooray!"—(in Iowa).

A swarm of bees in June, is in the same tune,—(in Iowa).

A swarm of bees in July, you need 'nt be afraid to try,—(in Iowa).

An August swarm, as the weather is warm,

Is all O. K.—don't fool it away,—(in Iowa).

A swarm of bees in September is rare.

But even that can be saved with care,—(in Iowa).

Warm weather has been slow in coming this spring. Only on a very few days has the thermometer indicated above 60°. There has been no frost to damage fruit in this part of the State. Everything is coming along finely, except corn, which was planted late. We have had an abundance of fruit bloom, and white clover is just beginning to blossom. We anticipate a prosperous year.

Forest City, Iowa, June 2, 1883.

For the American Bee Journal.

Italian and Hybrid Bees.

J. O. SHEARMAN.

On page 236, of the BEE JOURNAL, I notice Mr. Hutchinson's question in regard to best hybrids, etc. That reminds me of some of my own experience, which, I think, it would worth while to make known, at this time, as it may throw a little more light on the subject under inquiry. Some may incline to ridicule "Heddon's hybrids" as being no better than all others, but there certainly is a great difference in hybrid bees.

When I first started in keeping bees as a business, I used to wonder at so many people (and those who seemed to be posted, too) who spoke and wrote about the black bees being so much crosser than Italians, while I had large brown bees (called blacks) that were so quiet and easily handled that I opened the hives without smoker or protection of any sort, and when I got my first Italians, I found they were quicker in their movements, and more liable to sting upon slight provocation than those I had before. These brown bees were excellent breeders and workers also. I increased one colony to five, and had a fair surplus too, from four of them.

But two years ago this spring I found out the difference between brown and black bees. We all have in mind that severe winter and spring. I lost over 60 colonies, and to help fill up my empty combs, soon enough to be able to obtain some surplus, I bought 20 colonies (19 of them blacks), and they were black too, black as an old boot, and as cross as a setting hen. I left them at a neighbor's, $1\frac{1}{2}$ miles away from home, so as not to mix with my Italians. I then Italianized what I did not trade off. Years previously I had tried different strains of Italians, mostly light ones, but they would swarm when I tried to crowd them into the honey boxes, while my old brown bees would fill a set of boxes, then notify me they wanted more room, and take what I gave them in a contented sort of a way, and "stick to their knitting." Well, in looking over the papers one spring, I noticed that Heddon had been Italianized, so I sent to him for a colony of dark Italians, requesting him to send me one of the old queens he had received from Mr. Oatman, if he had them booked, and I believe he sent it, for though she did her work completely that season, she played out the next; but not until she had supplied me with a race of bees that excelled anything I had yet tried, for they would go up freely into the boxes and did generally fill all, or nearly all the room I gave them, before swarming, unless crowded in the brood-chamber. And, I could put off swarming by giving more room in the body of the hive, at the same time giving more surplus room, in the same way I had previously practiced with my brown bees.

Now, I come to the hybrid point of the matter. I crossed some of the young queens with the drones of the brown bees, and they produced such good bees for work, that I have never got rid of them all yet. Some of the best of those dark Italians survived the hard winter of two years ago, and I was able to run part of them through last season even, without swarming at all, with a good surplus, and they were always strong in bees.

My hobby has been, and is, to run for surplus, without much increase, to avoid the impression that these bees would not breed fast enough for profit. I will state that I had one of them (two years ago) fill two sets of brood comb, at the same time keeping both well supplied with brood; but I

consider that bad practice, as a queen soon wears out with such management.

In this connection (though off of the subject) I will say that I am convinced I have had a queen do good business through a whole season when she was 5 years old.

Last year (1882) I had several colonies of those first-class hybrids (Italian queens fertilized by brown drones), and they fairly took the lead of anything I had, for surplus, and breeding at the same time. They had 11 brood frames, 8x20 inches, and 75 pounds of surplus room in the height of the season, and all full of bees and work.

New Richmond, Mich.

What and How.

ANSWERS BY

James Heddon, Dowagiac, Mich.

Use of a Honey Board.

Mr. Heddon: in tiering up cases, in your hive, do you use a honey board between the first and second cases? Please answer in the BEE JOURNAL.

R. M. DENHAM.

St. Clairsville, O.

ANSWER.—We do not. There is no need of any there. Between the brood frames and first case is the place where bracing and consequent daubing occurs.

Honey Register.

Mr. Heddon: please explain how to use your honey register.

IRENEUS M. FOOTE.

Creston, Iowa.

ANSWER.—The following represents our surplus honey register, and it saves us more than \$25 worth of time annually.

29	30	31	1	2	3	4	Renewed.
28						5	
27						6	
26						7	
25		*				8	3-4 * 1-4
24						9	
23						10	
22						11	
21						12	
20	19	18	17	16	15	14	13 1-2

The dial plan was taken from the Root queen register. We drive a pin into each of the stars just over the tapering part, or about $\frac{1}{2}$ inch. Use the cheap, soft, No. 2 pins, which cost 5 cents per paper; they are better than the higher priced pins. To drive them straight, we use a little square block, with a crease cut square across it, which the pin lays in while being driven. Now, bend the pin to a right angle, and a dial is formed. We use two styles of paper, one of

thin white writing, which we paste on the north back corner of the super, and one of manila straw-colored tag board, which we tack on. I use and prefer the paste plan. Now, suppose you put on a case or super, either for comb or extracting. If you do so on June 2, put the left hand pin at "2," the right hand at "R," in the word "Renewed." Now, if you look at this super to see how business is developing, and find no commencement made on June 6, set the left pin at "6," and the right one at "D." "R" and "D" both denote an empty super, but "R," that it has not been examined since put on; "D," that it has one or more times.

On the "12" you find it $\frac{1}{4}$ full; put the left pin at "12" and right one at " $\frac{1}{4}$." If $\frac{1}{2}$ between " $\frac{1}{4}$ " and " $\frac{1}{2}$," and thus for any proportion your eye tells you is correct, from just started to nearly finished. With our tiering up system, we use one on every case, and you see we can tell just how matters stand, and just where an hour's work is needed at once.

We need no month dial, as he whose memory is a month "off," should not try to manage an apiary. We know just how practical and useful these registers are, by how we chafe when we come to one that we made the error of not tagging with the register.

Our style of arranging the figures in the dial is much better than Mr. Root's; the square form with all the figures upright, shows off at a glance a long way off.

SELECTIONS FROM OUR LETTER BOX

Bees and the White Clover.

We have rather a bad season for our pets; cold and raining some now. Near me, we have a great crop of white clover, but hardly a bee have I seen on it. Dr. N. P. Allen says, in the last BEE JOURNAL, that the bees are working on white clover in his neighborhood. I walked through a large field of beautiful clover, and I saw only two or three bees on it. We have fields literally white with it; and near us hundreds of acres of it. I have had only one swarm as yet, and that went back to the parent hive.

G. W. ASHBY.

Valley Station, Ky., June 3, 1883.

Honey Prospect in New York.

Up to this date bees have had a cold, windy spring; and where they were not in good condition when set out, they have "gone up." I have

lost but one colony since they were set out, and that was deserted when I was away. Bees are in fine condition, for quite a large number of them are preparing to swarm, and, if the weather should be favorable for a week, general swarming may be looked for. There is every prospect for a large crop of honey, in this locality, to those that have bees; for the fields are covered with clover, which will begin to bloom about the middle of this month. Basswood is budding as full as I ever saw it, and, with favorable weather, bees must have a lively time. It has been exceedingly wet ever since the snow disappeared in this locality, until the last 4 days, which have been warm and pleasant.

IRA BARBER.

De Kalb Junc., N. Y., June 4, 1883.

Cheering News from Kentucky.

Our Convention on the 2d inst., was a grand success—a fine turn-out of practical bee men. Our white clover harvest is immense, and the largest crop of honey will be gathered in Kentucky that we ever harvested; the clover fields look as white as snow, and bee men are worked down, and are in clover.

N. P. ALLEN.

Smith's Grove, Ky., June 4, 1883.

Texas Honey Crop.

The honey crop in this district promises badly. So far, there is little or none coming in, and colonies are dwindling very much. I have been feeding mine, and am doing so now; and, instead of dividing, it becomes a question of uniting weak colonies. With no honey coming in, queens stop laying, and colonies are fast getting in such a condition that, if there was to come a honey flow, the bees could not fairly gather it. Last year there was a good crop; this year appears to be an "off year." R. J. KENDALL.

Austin, Texas, June 3, 1883.

Cross Bees.

Why are my Italian bees so very cross this spring? One colony gave a swarm on the 9th of this month, which went back to the old stand without clustering. The weather set in cold and rainy, and they did not come out again until the 17th. They clustered on a little willow, close to the ground, so that I could not saw it off. I set the hive close up to the cluster, and took a turkey wing and commenced to brush them on the alighting board. I had only made one stroke of the brush, when about a quart went into the hive, and about two quarts into my face and hair. You may judge the result; as many stung me as could get a chance. A neighbor of mine had been wanting for several days to see the bees swarm, as it was a new thing to him. He was standing close by—they made a dive for him, and gave him a fearful stinging; he had a little dog with him, and the bees gave them both a fight. My neighbor ran away and the dog followed; both were covered with bees. He ran into a milk house, and so did the dog. Such a fight I never witnessed before. The

few I got in front of the hive induced the balance to go in all right. I was waiting for them to quiet down, so as to move the hive where I wanted it to remain. All at once they came rushing out and went back to their old stand again. It commenced to rain that evening, and kept cold until Sunday; about noon the sun came out and out came the bees; they soon clustered on the bottom of a little apple tree, down close to the ground, with a good many on the ground and in the grass. I took a dipper and my turkey wing and commenced business again, but was prepared for them that time. I made a veil and had it on, and a pair of gloves. So I got them all in, without receiving a sting, but I should have got a great many, except for the protection. They have been in the hive 3 days without a fly. The weather has been cold and rainy ever since; only stopping a little while at night to get a good start for the next day. I would have had 4 or 5 swarms this month, if the weather had been favorable. I have fed the new swarm to-day; they keep up a constant roar, as though all was right. I have heard a queen piping in the old hive ever since the swarm came out, but only hear one. Is that any indication of swarming soon again? I am a beginner in the business, and want to learn all I can. I have read Quinby's and Cook's Manuals, and, with the aid of the BEE JOURNAL, I think I can get through.

R. A. ROSSER.

Nelsonville, O., May 23, 1883.

[We expect the bees were hybrids, notwithstanding you call them Italians. Several have reported similar results when hiving hybrids under certain conditions. You should have had a good smoker at hand, and, by its use, saved such a calamity as the one you have described above. The unpropitious weather which had kept them prisoners so long, with no chance to be gathering honey, had doubtless made them angry, and ready to fight at the least provocation. Some bees seriously object to being brushed even with a turkey wing, and, when they are thus excited, will show their anger by acting just as your bees have done.]

The piping of the queen, which you mention, indicates that a "second swarm" is determined upon. Upon this decision, the bees prevent the first queen that issues from killing the rest, and place a strong guard over their cells, and when she comes with murderous intent, she is repulsed by the bees. This offends her majesty who utters these shrill notes of anger. If this piping is not heard within a few days after the first swarm issues, it is because the queen has no rivals, and swarming may be said to be over with that colony for the season.—ED.]

Bees Near a Roadway.

Please answer the following questions through the BEE JOURNAL:

1. Will the law compel me to move hives of bees that are standing near a line fence.
2. Will the law compel me to pay damages, if my bees sting horses that are driven on the opposite side of the fence.

I have had my bees where they now stand for the past 13 years, and without any trouble. But, this year, a drive-way has been made close to the fence, for the purpose of getting to a back lot. The fence is a tight board fence between 6 and 7 feet high. Neighbors also use this drive-way to work land on another farm. I am doing all that I can to control the bees, having moved some of the crosses from near the fence a distance of two miles.

JAS. B. TUMBER.

Warren's Corners, N. Y.

[Not being a judge, the law points we cannot pass upon, but if we owned the bees, and had any land elsewhere, they would be moved as soon as possible, so as not to have them annoyed and "worked up" all the time by passing teams, horses that are sweating, etc.—ED.]

Fully Appreciated.

The Weekly BEE JOURNAL is, to me, worth all the other bee papers put together; may you, Mr. Editor, live to see its full worth appreciated, not only at home here, but in thousands of foreign homes where the "busy bee" is kept, and where every flower is fanned by its silvery wings.

D. W. FLETCHER.

Lansingville, N. Y., May 21, 1883.

Experience of My Friend and I.

Perhaps the readers of the BEE JOURNAL would like to hear something of a friend of mine, living in the same house, who being fond of bee-culture, in the old country, continued in the new world to keep bees; not so much to make a trade of it, as to render his pastime pleasant. Accordingly the BEE JOURNAL never comes into his hands without being perused with great interest, from the beginning to the end. He tells me, that he received much information from it, especially about feeding and wintering. Last winter, making use of the hints given in the BEE JOURNAL, he succeeded in wintering his bees with but an insignificant loss of one weak colony, which he received too late in the fall to make a trial in feeding. The bees then clustered all on one side, leaving the other frame yet containing honey enough untouched, and finally died.

1. Why did the bees all gather on one side, and not move to the combs filled with honey?

My friend covered the hives, in the beginning of winter, partly with straw mats, and partly with blankets; around them he constructed a wall of chaff, a few inches in width. The

hives, having straw mats kept dry; the others not, for out of the inlet often water was flowing. I concluded that the moisture inside was absorbed by the straw mats, but not by the blankets. On the 19th of May, in one of the hives, there was much noise, and many of the bees clustered all in one pile outside of the hive. Now, I thought, they would swarm. My friend laughed first at me, but in the end he prepared a hive for any eventuality. Yet the cold weather from the 20th to the 23d checked them. We had a north wind storm and rain, with snow, and it was very cold; fires was started in the stoves once more.

2. Do bees really sometimes swarm in the end of May?

A Bingham smoker gave full satisfaction to my friend, who was overjoyed with it and the Bingham & Hetherington honey knife. Our bees are very "gentle and good-natured;" they never sting me, though I watch them closely in their busy movements. Once, my friend was in danger. One swarm of bees, which he had received from a neighbor, and which were not attended to properly, was to be transferred into a new hive. But the frames were all connected by combs, which the bees had constructed, making the replacing difficult. My friend, nevertheless, was determined to separate them. In cutting the connected combs asunder, he destroyed some brood; then there was humming about the ears. Hence, my friend received a few stings. Not so I. As we could not use the smoker—there was straw, etc., near—we smoked tobacco, and this so much, as to make us quite dizzy. Alas! never shall we do that again; we shall certainly use the Bingham smoker. FRANK.

Seneca Co., O., May 23, 1883.

- [1. The bees clustered on one side in order to utilize the heat of the cluster; then, as they were few in numbers, it became too cold for them to go to the honey, and hence starved, with "plenty" close to them, but out of their reach.]

2. Yes; if the weather is propitious, and they are strong in numbers.—ED.]

The "Big Damp," by the Floods.

We have had some very valuable yet unprofitable experience during the late "big damp" in the Ohio Valley, by the washing away of almost all the bees in the neighborhood. Several boxes and hives were caught during the flood, though quite cold weather, with bees clustered at the edges of comb out of the water, wet and chilled, but with little care they were saved. One man saved 2 out of 8 colonies, after they had been floating in the water four days. Another saved 8 out of 18, after floating six days, and only kept from floating away entirely by houses and high fences surrounding them; some were right side up, some bottom up, and others on their sides; yet almost all these are now in good condition, having built up rapidly on our abundant early spring fruit-bloom. Some of

them I have transferred for the parties to get rid of the badly soiled combs, the cells of which were well filled with mud and sand. My bees were saved by first placing them on the roof of the bee house, which subsequently floated away, but not until after I had transferred my bees to the roof of my office, where I saved them all, in good condition. All colonies taken from the water were more or less damaged, by depletion in numbers, and soiling of combs. Bees in Southern Ohio, above high water mark, and those kept out of the water, are in excellent condition. They wintered well, coming through, well stocked in bees and capped brood, and have built up fast during the spring, on early fruit bloom, which was very abundant. Now we have a most flattering prospect of white clover blossoms, scattered with unsparing hand by a wise, over-ruling Providence. Our honey harvest, this year, cannot be other than excellent. I look for my BEE JOURNAL as for my breakfast, with a keen appetite.

R. A. MOLLYNEAUX.

New Richmond, O., June 1, 1883.

Peculiar Season for Bees.

The past month has been the worst May I have ever known for bees, and as a consequence, bees are in poor condition. Mine are in fully as bad shape, if not worse, than they were last year at this time, and vegetation is at least a week later than then; and we thought last year was as bad as a season could be. The season will have to be a very peculiar one from this time on, to allow us to obtain an average crop of honey.

O. O. POPPLETON.

Williamstown, Iowa, June 1, 1883.

Cold and Backward Season.

The season is very cold and backward here. We had another frost last night. Fruit is much injured. Fruit and early forest bloom have amounted to almost nothing for the bees, on account of continual cold and rain. Feeding is now the rule, in my apiary, to ward off starvation, though the hives contained very ample stores in the fall. The colonies, however, are nearly all very strong; most of them having clustered outside. Have already had 4 swarms. Winter and spring loss is less than 10 per cent. The season is about two weeks late.

H. D. BURRELL.

Bangor, Mich., June 1, 1883.

"Bees and Honey." for Beginners.

The majority of those who buy bees of me, depend upon me to get them a reference book. "Bees and Honey" more nearly "fills the bill" than any work I know of, especially for those who buy that they may supply their own family with honey, and not to make a business of it. It combines cheapness, quality and quantity in the right proportions. To one who has purchased several colonies, I usually have donated a copy of it.

Lincoln, Neb. G. M. HAWLEY.

Special Notices.

Examine the Date following your name on the wrapper label of this paper; it indicates the end of the month to which you have paid your subscription on the BEE JOURNAL.

For safety, when sending money to this office get either a post office or express money order, a bank draft on New York or Chicago, or register the letter. Postage stamps of any kind may be sent for amounts less than one dollar. Local checks are subject to a discount of 25 cents at Chicago banks. American Express money orders for \$5, or less, can be obtained for 5 cents.

We wish to impress upon every one the necessity of being very specific, and carefully to state what they desire for the money sent. Also, if they live near one post office, and get their mail at another, be sure to give us the address we already have on our books.

Our Premiums for Clubs.

Any one sending us a club of **two** subscribers for 1 year, for the Weekly, with \$4, will be entitled to a copy of Bees and Honey, in cloth, postpaid.

For **three** subscribers, with \$6, we will send Cook's Manual, in paper, Emerson's Binder for the Weekly, or Apiary Register for 50 colonies.

For **four** subscribers, with \$8, we will send Cook's Manual in cloth, or Apiary Register for 100 colonies.

For **five** subscribers, with \$10, we will send the Apiary Register for 200 colonies, Quinby's New Bee-Keeping, Root's A B C of Bee Culture, or an extra copy of the Weekly BEE JOURNAL for one year.

To get any of the above premiums for the Monthly BEE JOURNAL send double the number of subscribers, and the same amount of money.

Bee Pasturage a Necessity.—We have just issued a new pamphlet giving our views on this important subject, with suggestions what to plant, and when and how. It is illustrated with 26 engravings, and will be sent postpaid to any address for 10 cents.

Do not send coins in a letter. It is dangerous and increases the postage unnecessarily. Always send postage stamps, for fractions of a dollar, and, if you can get them—one-cent stamps; if not, any denomination of postage stamps will do.

Constitutions and By-Laws for local Associations \$2.00 per 100. The name of the Association printed in the blanks for 50 cents extra.

Honey as Food and Medicine.

A new edition, revised and enlarged, the new pages being devoted to new Recipes for Honey Medicines, all kinds of cooking in which honey is used, and healthful and pleasant beverages.

We have put the price of them low to encourage bee-keepers to scatter them far and wide. Single copy 6 cents, postpaid; per dozen, 50 cents; per hundred, \$4.00. On orders of 100 or more, we print, if desired, on the cover-page, "Presented by," etc., (giving the name and address of the bee-keeper who scatters them). This alone will pay him for all his trouble and expense—enabling him to dispose of his honey at home, at a good profit.

The Apiary Register.

All who intend to be systematic in their work in the apiary, should get a copy and commence to use it.

For 50 colonies (120 pages).....\$1 00
" 100 colonies (220 pages)..... 1 50
" 200 colonies (420 pages)..... 2 00

The larger ones can be used for a few colonies, give room for an increase of numbers, and still keep the record all together in one book, and are therefore the most desirable ones.

Special Notice.—We will, hereafter, supply the Weekly BEE JOURNAL for one year, and the seventh edition of Prof. Cook's Manual of the Apiary, bound in fine cloth, for \$2.75, or the Monthly Bee Journal, and the Manual in cloth for \$1.75. As this offer will soon be withdrawn, those who desire it should send for the book at once.

Emerson Binders—made especially for the BEE JOURNAL, are lettered in gold on the back, and make a very convenient way of preserving the BEE JOURNAL as fast as received. They will be sent, post-paid, for 75 cents, for the Weekly; or for the Monthly, 50 cents. They cannot be sent by mail to Canada.

Preparation of Honey for the Market, including the production and care of both comb and extracted honey, instructions on the exhibition of bees and honey at Fairs, etc. This is a new 10 cent pamphlet, of 32 pages.

Sample Copies of the AMERICAN BEE JOURNAL will be sent free to any person. Any one intending to get up a club can have sample copies sent to the persons they desire to interview, by sending the names to this office.

Bingham Smoker Corner.

Large Smokers need wide shields. Bingham's have them, and springs that do not rust and break, and bellows that sparks and smoke do not enter. The Conqueror has all improvements made to date, and a 3x7 inch stove, and 5x7 inch bellows. Sent post-paid for \$1.75. Address,

BINGHAM & HETHERINGTON,
Abronla Mich.

All Excelling.—Messrs. Bingham & Hetherington, Dear Sirs:—I am now selling your Smokers almost exclusively. You are excelling yourselves in smokers all the time.

Respectfully, J. G. TAYLOR.
Austin, Texas, May 10, 1883.

Cyprians Conquered.

All summer long it has been "which and tother" with me and the Cyprian colony of bees I have—but at last I am "boss." Bingham's "Conqueror Smoker" did it. If you want lots of smoke just at the right time, get a Conqueror Smoker of Bingham.

G. M. DOOLITTLE.
Borodino, N. Y., Aug. 15, 1882.

During the following three months, Bingham Smokers will be sent post-paid, per mail, on receipt of the following prices:

The "Doctor". (wide shield)—3½ in. fire tube, \$2.00
The Conqueror (wide shield)—3 in. fire tube, 1.75
Large (wide shield)—2½ in. fire tube, 1.50
Extra (wide shield)—2 in. fire tube, 1.25
Plain (nar. shield)—2 in. fire tube, 1.00
Little Wonder. (nar. shield)—1½ in. fire tube, .65
Bingham & Hetherington Uncapping Knife.. 1.15

With thanks for letters of encouragement, and the absence of complaining ones, we tender to our thirty-five thousand patrons our best wishes.
Very Respectfully Yours,

BINGHAM & HETHERINGTON.
Abronla, Mich., June 1, 1883.

Ribbon Badges, for bee-keepers, on which are printed a large bee in gold, we send for 10 cts. each, or \$8 per 100.

Do not let your numbers of the BEE JOURNAL for 1882 be lost. The best way to preserve them is to procure a binder and put them in. They are very valuable for reference.

May we ask you, dear reader, to speak a good word for the BEE JOURNAL to neighbors who keep bees, and send on at least one new subscription with your own? Our premium, "Bees and Honey," in cloth, for one new subscriber to the Weekly, or two for the Monthly, besides your own subscription to either edition, will pay you for your trouble, besides having the satisfaction of knowing that you have aided the BEE JOURNAL to a new subscriber, and progressive apiculture to another devotee.

JUST OUT!

New circular and price of Bees and Queens. Also, STENCILS for bee-keepers' use.
JOS. M. BROOKS,
1306t Columbus, Ind.

Honey and Beeswax Market.

OFFICE OF AMERICAN BEE JOURNAL.
Monday, 10 a. m., June 11, 1882.

The following are the latest quotations for honey and beeswax received up to this hour:

Quotations of Cash Buyers.

CHICAGO.

HONEY—The nominal price of extracted is 7c. for dark and 9c. for light—here. The supply is abundant and sales are slow.
BEESWAX—None in the market.

AL. H. NEWMAN, 923 W. Madison St.

CINCINNATI.

HONEY—The market for extracted honey is lively, and the demand exceeds the arrivals. Our stock is small and we are in danger of having sold out every day. We pay 76½c. for good honey on arrival, the latter price for choice clover. There is a small demand for comb honey, and prices nominal.

BEESWAX—Arrivals of beeswax are plentiful. We pay 35c. for a good article on arrival.

CHAS. F. MUTH.

Quotations of Commission Merchants.

NEW YORK.

HONEY—Best clover in 1-lb. sections (no glass) 22@23c.; in 2-lb. sections (glass) 18@20c. Fair quality, 1 and 2-lb. sections, 17@18c. Extracted, white, in small barrels, 10@11½c.; buckwheat, 8@9c. **BEESWAX**—Is more plentiful. Prime yellow sells at 37½@38½c.

H. K. & F. B. THURBER & CO.

CHICAGO.

HONEY—Prices declining. Holders are anxious to sell, and the prices vary very much.
BEESWAX—35@36c.

R. A. BURNETT, 161 South Water St.

SAN FRANCISCO.

HONEY—Stocks and the demand are both light. More or less difficulty would be experienced in filling a large order for a straight lot. White comb, 14@17c.; dark to good, 11@13c.; extracted, choice to extra white, 8½@9½c.; dark and candied, 5@7½c.

BEESWAX—Wholesale, 27@28c.
STRAINS & SMITH, 425 Front Street.

ST. LOUIS.

HONEY—Strained salable at 7@7½c.; comb sold in a jobbing way only—old 10@14c. and new 15c.
BEESWAX—Sold mainly at 33@34c.—latter for prime.

W. T. ANDERSON & CO., 117 N. Main Street.

CLEVELAND.

HONEY—There is a moderate sale for best white 1-lb. sections at 18c. occasionally 19c. but 2 lbs. are not called for. Extracted is no sale at all.

BEESWAX—Not offering.

A. C. KENDEL, 115 Ontario Street.

BOSTON.

HONEY—Our market is fairly active. We quote: ¼ lb. sections at 30c.; 1 lb. sections, 22@25c.; 2 lb. sections, 20@22c. Extracted, 10c. per lb. Good lots of extracted are wanted in kegs or barrels.
BEESWAX—Our supply is gone; we have none to quote.

CROCKER & BLAKE, 57 Chatham Street.

NOTICE.

We have just completed the largest and best lot of Smokers ever manufactured. Prices by Mail:

2 inch.....Double Blast.....\$1.50
2 ".....Single ".....1.00
2½ ".....Double ".....1.75
3¼ ".....Single ".....2.00

Special inducements to those who buy to sell again.

THE BEST BEE BOOK

"Of all the books on bee-keeping, QUINBY'S NEW BEE-KEEPING stands pre-eminently at the head, in my opinion." Sincerely Yours,
April 11, 1883. G. M. DOOLITTLE.

Sent by Mail, Post-paid, for \$1.50.

L. C. ROOT & BRO., Mohawk, N. Y.
19Att

DUNHAM COMB FOUNDATION.

Twenty-five lbs. or less, 55c. per lb.; over 25 lbs. 52c. per lb. Extra thin and bright (10 sq. ft. to the lb.) 55c. Wax worked for 10c. per pound.
24A5t F. W. HOLMES, Coopersville, Mich.

HOLY LAND QUEENS.

Untested, ready about June 10. Single Queen, in this month, \$1.25; six or more, \$1.00 each; no tested Queens, this month.

I. R. GOOD, TULLAHOMA, Coffee Co., TENN.
23A4w

BEES and HONEY,

OR THE

Management of an Apiary for Pleasure and Profit; by

THOMAS G. NEWMAN,

Editor of the Weekly Bee Journal.

925 West Madison Street, Chicago, Ill.

It contains 160 profusely illustrated pages, is "fully up with the times" in all the improvements and inventions in this rapidly developing pursuit, and presents the apiarist with everything that can aid in the successful management of the Honey Bee, and at the same time produce the most honey in its best and most attractive condition.

Appreciative Notices.

A neat and abundantly illustrated hand-book of apiculture.—American Agriculturist, N. Y.

Its chapter on marketing honey is worth many times its cost.—Citizen, Pulaski, Tenn.

Contains all the information needed to make bee-culture successful.—Eagle, Union City, Ind.

Just such a work as should be in the hands of every beginner with bees.—News, Keltsburg, Ill.

Valuable for all who are interested in the care and management of bees.—Dem., Allegan, Mich.

Engravings are fine. Gotten up in the best style, and is cheap at the price.—Farmer, Cleveland, O.

It comprises all that is necessary for successful bee-culture, save experience and good judgment.—Daily Republican, Utica, N. Y.

Gives minute details for the management and manipulations necessary to make bee-keeping a success.—Col. Valley and Farm.

Written in an interesting and attractive manner, and contains valuable information for all readers, even though they be not directly interested in the care of bees.—Sentinel, Rome, N. Y.

It is a valuable and practical book, and contains a complete resume of the natural history of the little busy bee, as well as of all that one needs to know in their care and management.—Chicago Herald.

Contains a vast fund of information in regard to bee-culture. He who would keep abreast of the times must keep posted in all the improvements in his line. We advise all interested to get a copy of this book.—Daily Times, San Bernardino, Cal.

It embraces every subject that will interest the beginner. It describes all the newest discoveries in the art by which the production of delicious and health-giving honey is obtained, as well as how to prepare it for the market in the most attractive form. It is embellished with beautiful engravings, and is the most perfect work of the kind, for the price, that has ever come under our notice.—Farmer, Lancaster, Pa.

PRICE—Bound in cloth, 75 cents; in paper covers, 50 cents, postpaid.

THOMAS G. NEWMAN,

925 W. Madison St., Chicago, Ill.

\$4.00 One Hundred Colonies Bees. \$4.00

As our store business demands all our time, we have decided to close out our apiary at \$4.00 per colony. Will extract most of our honey and commence shipping about the 1st of August. Bees in my double-wall hive, size of frame, 14x12, with side and top storage for 75 pounds of honey, also 25 3-comb nuclei double wall, takes hive frame, at \$2.00 each. Orders booked and filled in rotation. Sent by Registered letter.
24Alt Address, J. E. MOORE, BYRON, N. Y.

E. T. LEWIS & CO., Toledo, Ohio,

Manufacturers of the U. S. STANDARD Honey Extractor (new improvements), and all other Apian Supplies. Send for circular. 17A 3Btf

BEE - KEEPERS, before ordering your APIARIAN-SUPPLIES

send for our large illustrated catalogue, sent free to any address.
E. Kretschmer, Coburg, Iowa.

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